Form PTO-1390US DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE
(Rev. 5-93)

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NO. **C 2078 PCT/US**

U S APPLICATION NO. (if known sec 17 CFR 1 5)
10/088732

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/EP00/09018	**September 15, 2000**	**September 23, 1999**

TITLE OF INVENTION
COSMETIC AND/OR PHARMACEUTICAL PREPARATIONS

APPLICANT(S) FOR DO/EO/US
Karl Heinz Schmid, Bernd Fabry, Alfred Westfechtel, Josef Koester and Ansgar Behler

Applicant herewith submits to the United States Designated/Elected Office (EO/DO/US) the following items and other information:

1. ■ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.

2. □ This a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.

3. □ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39 (1).

4. ■ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.

5. ■ A copy of the International Application as filed (35 U.S. C. 371(c)(2)).
   a. □ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ■ has been transmitted by the International Bureau.
   c. □ is not required, as the application was filed in the United States Receiving Office (RO/US).

6. ■ A translation of the International Application into English (35 U.S.C. 371(c)(2)).

7. ■ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
   a. □ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. □ have been transmitted by the International Bureau.
   c. □ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ■ have not been made and will not be made.

8. □ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).

9. ■ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)). (UNEXECUTED)

10. □ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11. to 16. below concern other document(s) or information included:

11. □ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.

12. □ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.

13. ■ A FIRST preliminary amendment
    □ A SECOND or SUBSEQUENT preliminary amendment.

14. □ A substitute specification.

15. □ A change of power of attorney and/or address letter.

16. □ Other items or information.:

"Express Mail" mailing label number **EL780370474US**

U.S. Application No. (If known see CFR1.30) 10/088732	INTERNATIONAL APPLICATION NO. PCT/EP00/09018	ATTORNEY'S DOCKET NUMBER C 2078 PCT/US

17. ■ The following fees are submitted:

Basic National Fee (37 CFR 1.492(a)(1)-(5)):

Search Report has been prepared by the EPO or JPO..... . **$890.00**

International preliminary examination fee paid to USPTO (37CFR 1.482) **$690.00**

No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37CFR 1.445(a)(2))..... **$760.00**

Neither international preliminary examination fee (37CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO. **$1000.00**

International preliminary examination fee paid to USPTO (37CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4)..... **$96.00**

	CALCULATIONS	PTO USE ONLY
ENTER APPROPRIATE BASIC FEE AMOUNT =	$ 890	00
Surcharge of $130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date 37 (CFR 1.492(e)).	$	

Claims	Number filed	Number Extra	Rate		
Total Claims	15 - 20 =	0	X 18.00	$ 0	00
Independent Claims	2 - 3 =	0	X 84.00	$ 0	00
Multiple dependent claims (s)(if applicable)		0	+ 260.00	$ 0	00
TOTAL OF ABOVE CALCULATIONS =				$ 890	00
Reduction by ½ for filing by small entity, if applicable. Verified Small Entity statement must also be filed. (Note 37 CFR 1.9, 1.27, 1.28).				$	
SUBTOTAL =				$ 890	00
Processing fee of **$130.00** for furnishing the English translation later the ☐ 20 ☐ 30 months from the earliest claimed priority date (37CFR 1.492(f))..... +				$	
TOTAL NATIONAL FEE =				$ 890	00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). $40.00 per property +				$	
TOTAL FEES ENCLOSED =				$ 890	00
				Amount to be: refunded	$----------
				charged	890.00

a. ☐ A check in the amount of $_____ to cover the above fees is enclosed.

b. ■ Please charge my Deposit Account No. **50-1177** in the amount of **$ 890.00** to cover the above fees. A triplicate copy of this sheet is enclosed. Order No. **02-0152**.

c. ■ The Assistant Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. **50-1177**. A triplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO: Cognis Corporation, Law Dept.
2500 Renaissance Blvd., Ste. 200
Gulph Mills, PA 19406

SIGNATURE

Steven J. Trzaska
NAME ATTORNEY FOR APPLICANT

36,296
REGISTRATION NUMBER

Form PTO 1390 (REV 5-93)

"Express Mail" mailing label number EL780370474US

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Schmid et al.
I.A. Number	:	PCT/EP00/09018
I.A. Filing Date:		September 15, 2000
Priority Date	:	September 23, 1999
Title	:	COSMETIC AND/OR PHARMACEUTICAL PREPARATIONS
Grp./A.U.	:	Unknown
Examiner	:	Unknown
Docket No.	:	C 2078 PCT/US

Assistant Commissioner for Patents
Box PCT
Washington, DC 20231

ATTN: DO/EO/US

PRELIMINARY AMENDMENT

Sir:

Preliminary to examination, please amend the instant application as follows.

In the Specification:

At page 1, line 1, delete "Field of the Invention", and replace with --Background of the Invention--.

At page 1, line 7, delete "Prior Art".

Enter a new page 33, submitted herewith, containing the Abstract of the Disclosure.

Preliminary Amendment of U.S. National Stage for International Application PCT/EP00/09018 filed September 15, 2000

In the Claims:

Cancel claims 1-12, without prejudice.

Please enter the following new claims.

13. A composition comprising:

(a) an alkyl and/or alkenyl oligoglycoside;

(b) a foam stabilizer selected from the group consisting of a partial ester of tartaric acid and/or its salt, a partial ester of malic acid and/or its salt, a partial ester of citric acid and/or its salt, and mixtures thereof; and

(c) optionally, at least one active ingredient selected from the group consisting of a cosmetic active ingredient, a pharmaceutical active ingredient, and mixtures thereof, with the proviso that (a) and (b) are employed in a ratio by weight of from about 60:40 to 40:60.

14. The composition of claim 13 wherein the foam stabilizer is derived from a C_{6-22} fatty alcohol.

15. The composition of claim 13 wherein both (a) and (b) are derived from the same type of fatty alcohol.

16. The composition of claim 13 wherein the foam stabilizer is present in a salt form selected from the group consisting of alkali metal, alkaline earth metal, ammonium, alkylammonium, alkanolammonium, glucammonium, and mixtures thereof.

17. The composition of claim 13 wherein the foam stabilizer is a partial ester of tartaric acid derived from a C_{10-18} fatty alcohol.

18. The composition of claim 13 wherein the foam stabilizer is a partial ester of malic acid derived from a C_{10-18} fatty alcohol.

19. A process for enhancing the dermatological and ophthalmic mucous membrane compatibility of a cosmetic and/or pharmaceutical composition by adding to the composition an effective amount of a surfactant mixture containing:

(a) an alkyl and/or alkenyl oligoglycoside; and

(b) a foam stabilizer selected from the group consisting of a partial ester of tartaric acid and/or its salt, a partial ester of malic acid and/or its salt, a partial ester of citric acid and/or its salt, and mixtures thereof, with the proviso that (a) and (b) are employed in a ratio by weight of from about 60:40 to 40:60.

20. The process of claim 19 wherein the foam stabilizer is derived from a C_{6-22} fatty alcohol.

21. The process of claim 19 wherein both (a) and (b) are derived from the same type of fatty alcohol.

22. The process of claim 19 wherein the foam stabilizer is present in a salt form selected from the group consisting of alkali metal, alkaline earth metal, ammonium, alkylammonium, alkanolammonium, glucammonium, and mixtures thereof.

23. The process of claim 19 wherein the foam stabilizer is a partial ester of tartaric acid derived from a C_{10-18} fatty alcohol.

24. The process of claim 19 wherein the foam stabilizer is a partial ester of malic acid derived from a C_{10-18} fatty alcohol.

25. The process of claim 19 wherein the surfactant mixture is added to the composition in an amount of from about 0.1 to 50% by weight, based on the weight of the composition.

26. The process of claim 19 wherein the surfactant mixture is added to the composition in an amount of from about 1 to 30% by weight, based on the weight of the composition.

27. The process of claim 19 wherein the surfactant mixture is added to the composition in an amount of from about 2 to 15% by weight, based on the weight of the composition.

Preliminary Amendment of U.S. National Stage for International Application PCT/EP00/09018 filed September 15, 2000

REMARKS/ARGUMENTS

Claims 13-27 are currently pending in the instant application.

The Specification has been amended to include the preferred section headings pursuant to 37 C.F.R. §1.77. An Abstract of the Disclosure in accordance with the abstract of the corresponding international publication has been added on a separate sheet following the claims. All of the amendments to the Specification constitute deletions of original section headings and/or paragraphs, and insertions or additions of new section headings and/or paragraphs. It is submitted that the amendments to the Specification made herein introduce no new matter. Their entry is therefore proper and respectfully requested. Accordingly, pursuant to 37 C.F.R. §1.121(b)(1)(iii), no separate page captioned "VERSION WITH MARKINGS TO SHOW CHANGES MADE" is necessary.

Original claims 1-12 have been canceled and replaced with new claims 13-27 solely for the purpose of improving clarity and grammar, which may suffer in translation, and not for any reason which relates to the statutory requirements for a patent. New claims 13-27 have not been added in response to any rejection, nor in anticipation of any rejection. Applicant(s) respectfully submit(s) that the scope of new claims 13-27 corresponds to the scope of original claims 1-12, and that new claims 13-27 are no narrower than original claims 1-12. Furthermore, although a moot point in view of their cancellation, Applicant(s) respectfully submit(s) that original claims 1-12 satisfied the requirements of 35 U.S.C. §112, as filed. New claims 13-27 are supported by the claims as originally filed and by the Examples. No new matter has been introduced. Entry is therefore believed by Applicant to be proper and respectfully requested.

Prompt examination of the instant application in view of the amendments

made herein is respectfully requested.

Respectfully submitted,

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Enc.: New Page 33

Abstract of the Disclosure

A composition containing: (a) an alkyl and/or alkenyl oligoglycoside; (b) a foam stabilizer selected from the group consisting of a partial ester of tartaric acid and/or its salt, a partial ester of malic acid and/or its salt, a partial ester of citric acid and/or its salt, and mixtures thereof; and (c) optionally, at least one active ingredient selected from the group consisting of a cosmetic active ingredient, a pharmaceutical active ingredient, and mixtures thereof, with the proviso that (a) and (b) are employed in a ratio by weight of from about 60:40 to 40:60.

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WO 01/21140 PCT/EP00/09018

Cosmetic and/or Pharmaceutical Preparations

Field of the Invention

This invention relates generally to cosmetics and more particularly to preparations containing certain sugar surfactants in combination with hydroxycarboxylic acid partial esters and to the use of the mixtures for the production of certain surface-active compositions.

Prior Art

Alkyl oligoglycosides are surfactants which, put simply, combine the foaming power of anionic surfactants with the dermatological compatibility of nonionic surfactants. By virtue of these two properties and their compatibility with virtually all other cosmetic ingredients, glycosides are now firmly established in the field of manual dishwashing detergents and particularly cosmetics. Nevertheless, alkyl oligoglucosides still have deficiencies. Thus, although the basic foam is adequate, foam stability is significantly poorer than that of alkyl ether sulfates. In addition, an improvement in compatibility with ophthalmic mucous membrane would be advantageous.

Reference is made in this connection to European patent **EP 0258814 B1** (Auschem) which describes esters of alkyl oligoglucosides with hydroxycarboxylic acids, for example citric acid or tartaric acid, and their use in cosmetics. Although these substances - which have a covalent bond between one of the carboxylic acid groups of the hydroxy acids and the primary hydroxyl group of the glycosides - are known to be mild, they do have weaknesses in their compatibility with ophthalmic mucous membrane. In addition, their foam stability in hard water is unsatisfactory, especially in the presence of sebum.

Accordingly, the problem addressed by the present invention was to

provide new preparations based on alk(en)yl oligoglycosides which would be distinguished by improved dermatological compatibility, particularly ophthalmic mucous membrane compatibility, and more favorable foaming kinetics.

Description of the Invention

The present invention relates to cosmetic and/or pharmaceutical preparations containing

(a) alkyl and/or alkenyl oligoglycosides and
(b) hydroxycarboxylic acid partial esters and/or salts thereof.

It has surprisingly been found that the preparations according to the invention are distinguished by particular dermatological and ophthalmic mucous membrane compatibility and show good foaming behavior and high foam stability in hard water, even with high levels of fat. It has also been found that the mixtures are particularly easy to thicken by addition of fatty alcohols, significantly improve the substantivity of cationic polymers, allow the stable incorporation of even relatively large quantities of silicones and increase the photostability of UV protection factors.

Alkyl and/or alkenyl oligoglycosides

Alkyl and alkenyl oligoglycosides are known nonionic surfactants which correspond to formula **(I)**:

$$R^1O\text{-}[G]_p \qquad (I)$$

where R^1 is an alkyl and/or alkenyl group containing 4 to 22 carbon atoms, G is a sugar unit containing 5 or 6 carbon atoms and p is a number of 1 to 10. They may be obtained by the relevant methods of preparative organic

chemistry. **EP-A1 0 301 298** and **WO 90/03977** are cited here as representative of the literature abundantly available on the subject.

The alkyl and/or alkenyl oligoglycosides may be derived from aldoses or ketoses containing 5 or 6 carbon atoms, preferably glucose. Accordingly, the preferred alkyl and/or alkenyl oligoglycosides are alkyl and/or alkenyl oligo**glucosides**. The index p in general formula **(I)** indicates the degree of oligomerization (DP), i.e. the distribution of mono- and oligoglycosides, and is a number of 1 to 10. Whereas p in a given compound must always be an integer and, above all, may assume a value of 1 to 6, the value p for a certain alkyl oligoglycoside is an analytically determined calculated quantity which is generally a broken number. Alkyl and/or alkenyl oligoglycosides having an average degree of oligomerization p of 1.1 to 3.0 are preferably used. Alkyl and/or alkenyl oligoglycosides having a degree of oligomerization of less than 1.7 and, more particularly, between 1.2 and 1.4 are preferred from the applicational perspective.

The alkyl or alkenyl group R^1 may be derived from primary alcohols containing 4 to 11 and preferably 8 to 10 carbon atoms. Typical examples are butanol, caproic alcohol, caprylic alcohol, capric alcohol and undecyl alcohol and the technical mixtures thereof obtained, for example, in the hydrogenation of technical fatty acid methyl esters or in the hydrogenation of aldehydes from Roelen's oxosynthesis. Alkyl oligoglucosides having a chain length of C_8 to C_{10} (DP = 1 to 3), which are obtained as first runnings in the separation of technical C_{8-18} coconut oil fatty alcohol by distillation and which may contain less than 6% by weight of C_{12} alcohol as an impurity, and also alkyl oligoglucosides based on technical $C_{9/11}$ oxoalcohols (DP = 1 to 3) are preferred.

In addition, the alkyl or alkenyl group R^1 may also be derived from primary alcohols containing 12 to 22 and preferably 12 to 14 carbon atoms. Typical examples are lauryl alcohol, myristyl alcohol, cetyl alcohol, palmitoleyl alcohol, stearyl alcohol, isostearyl alcohol, oleyl alcohol, elaidyl alcohol,

petroselinyl alcohol, arachyl alcohol, gadoleyl alcohol, behenyl alcohol, erucyl alcohol, brassidyl alcohol and technical mixtures thereof which may be obtained as described above. Alkyl oligoglucosides based on hydrogenated $C_{12/14}$ coconut oil fatty alcohol having a DP of 1 to 3 are preferred.

Hydroxycarboxylic acid partial esters and their salts

Hydroxycarboxylic acid partial esters are known nonionic surfactants which are available on an industrial scale and which are often used, for example, as food-grade emulsifiers. The substances which form component (b) are preferably esters of hydroxycarboxylic acids containing 1 to 6 carbon atoms, especially esters of hydroxycarboxylic acids selected from the group consisting of lactic acid, tartaric acid, malic acid and citric acid and self-condensation products thereof. The partial esters are anionic surfactants, i.e. compounds which still contain at least one free carboxylic group. Accordingly, they may be acidic esters or neutralization products thereof. The partial esters are preferably present in the form of their alkali metal, alkaline earth metal, ammonium, alkyl ammonium, alkanol-ammonium and/or glucammonium salts. The esters are also preferably derived from fatty alcohols containing 6 to 22 carbon atoms. Accordingly, typical examples are hydroxycarboxylic acid partial esters based on caproic alcohol, caprylic alcohol, 2-ethylhexyl alcohol, capric alcohol, lauryl alcohol, isotridecyl alcohol, myristyl alcohol, cetyl alcohol, palmitoleyl alcohol, stearyl alcohol, isostearyl alcohol, oleyl alcohol, elaidyl alcohol, petroselinyl alcohol, linolyl alcohol, linolenyl alcohol, elaeostearyl alcohol, arachyl alcohol, gadoleyl alcohol, behenyl alcohol, erucyl alcohol and brassidyl alcohol and technical mixtures thereof. Hydroxycarboxylic acid partial esters based on technical coconut fatty alcohols are preferably used. However, oxoalcohols, such as Neodols (Shell), may also be used. In addition, preparations containing as component (b) esters of

hydroxycarboxylic acids with fatty alcohols of which the alk(en)yl group corresponds to that of the alk(en)yl oligoglycosides are particularly preferred. Monoesters and/or diesters of tartaric acid with C_{10-18} fatty alcohols have also proved to be particularly advantageous in terms of foaming behavior and compatibility. Finally, the preparations may contain the alkyl and/or alkenyl oligoglycosides and hydroxycarboxylic acid partial esters in a ratio by weight of 1:99 to 99:1, preferably 5:95 to 95:5, more preferably 10:90 to 90:10, most preferably 25:75 to 75:25 and, in one most particularly preferred embodiment, 40:60 to 60:40. The preparations are generally present in the form of aqueous solutions or pastes which have a solids content (corresponding to the active substance content or to the nonaqueous component) of 5 to 50, preferably 10 to 35 and more particularly 15 to 25% by weight.

Commercial Applications

The mixtures according to the invention of (a) alkyl and/or alkenyl oligoglycosides and (b) hydroxycarboxylic acid partial esters are distinguished by particular dermatological and ophthalmic mucous membrane compatibility and show good foaming behavior and high foam stability in hard water, even with high levels of fat. Accordingly, the present invention also relates to their use for the production of cosmetic and/or pharmaceutical preparations in which they may be present in quantities of 0.1 to 50% by weight, preferably 1 to 30% by weight and more particularly 2 to 15% by weight.

Cosmetic and/or pharmaceutical preparations

The surfactant mixtures according to the invention may be used for the production of cosmetic and/or pharmaceutical preparations, for example hair shampoos, hair lotions, foam baths, shower baths, creams, gels, lotions, alcoholic and aqueous/alcoholic solutions, emulsions, wax/fat

compounds, stick preparations, powders or ointments. These preparations may also contain mild surfactants, oil components, emulsifiers, superfatting agents, pearlizing waxes, consistency factors, thickeners, polymers, silicone compounds, fats, waxes, lecithins, phospholipids, stabilizers, biogenic agents, deodorizers, antiperspirants, antidandruff agents, film formers, swelling agents, UV protection factors, antioxidants, hydrotropes, preservatives, insect repellents, self-tanning agents, tyrosine inhibitors (depigmenting agents), solubilizers, perfume oils, dyes and the like as further auxiliaries and additives.

Typical examples of suitable mild, i.e. particularly dermatologically compatible, **surfactants** are fatty alcohol polyglycol ether sulfates, monoglyceride sulfates, mono- and/or dialkyl sulfosuccinates, fatty acid isethionates, fatty acid sarcosinates, fatty acid taurides, fatty acid glutamates, α-olefin sulfonates, ether carboxylic acids, fatty acid glucamides, alkylamidobetaines and/or protein fatty acid condensates, preferably based on wheat proteins.

Suitable **oil components** are, for example, Guerbet alcohols based on fatty alcohols containing 6 to 18 and preferably 8 to 10 carbon atoms, esters of linear C_{6-22} fatty acids with linear C_{6-22} fatty alcohols, esters of branched C_{6-13} carboxylic acids with linear C_{6-22} fatty alcohols such as, for example, myristyl myristate, myristyl palmitate, myristyl stearate, myristyl isostearate, myristyl oleate, myristyl behenate, myristyl erucate, cetyl myristate, cetyl palmitate, cetyl stearate, cetyl isostearate, cetyl oleate, cetyl behenate, cetyl erucate, stearyl myristate, stearyl palmitate, stearyl stearate, stearyl isostearate, stearyl oleate, stearyl behenate, stearyl erucate, isostearyl myristate, isostearyl palmitate, isostearyl stearate, isostearyl isostearate, isostearyl oleate, isostearyl behenate, isostearyl oleate, oleyl myristate, oleyl palmitate, oleyl stearate, oleyl isostearate, oleyl oleate, oleyl behenate, oleyl erucate, behenyl myristate, behenyl palmitate, behenyl stearate, behenyl isostearate, behenyl oleate, behenyl

behenate, behenyl erucate, erucyl myristate, erucyl palmitate, erucyl stearate, erucyl isostearate, erucyl oleate, erucyl behenate and erucyl erucate. Also suitable are esters of linear C_{6-22} fatty acids with branched alcohols, more particularly 2-ethyl hexanol, esters of hydroxycarboxylic acids with linear or branched C_{6-22} fatty alcohols, more especially Dioctyl Malate, esters of linear and/or branched fatty acids with polyhydric alcohols (for example propylene glycol, dimer diol or trimer triol) and/or Guerbet alcohols, triglycerides based on C_{6-10} fatty acids, liquid mono-/di-/triglyceride mixtures based on C_{6-18} fatty acids, esters of C_{6-22} fatty alcohols and/or Guerbet alcohols with aromatic carboxylic acids, more particularly benzoic acid, esters of C_{2-12} dicarboxylic acids with linear or branched alcohols containing 1 to 22 carbon atoms or polyols containing 2 to 10 carbon atoms and 2 to 6 hydroxyl groups, vegetable oils, branched primary alcohols, substituted cyclohexanes, linear and branched C_{6-22} fatty alcohol carbonates, Guerbet carbonates, esters of benzoic acid with linear and/or branched C_{6-22} alcohols (for example Finsolv® TN), linear or branched, symmetrical or nonsymmetrical dialkyl ethers containing 6 to 22 carbon atoms per alkyl group, ring opening products of epoxidized fatty acid esters with polyols, silicone oils and/or aliphatic or naphthenic hydrocarbons, for example squalane, squalene or dialkyl cyclohexanes.

Suitable **emulsifiers** are, for example, nonionic surfactants from at least one of the following groups:

- products of the addition of 2 to 30 moles of ethylene oxide and/or 0 to 5 moles of propylene oxide onto linear C_{8-22} fatty alcohols, C_{12-22} fatty acids, alkyl phenols containing 8 to 15 carbon atoms in the alkyl group and alkylamines containing 8 to 22 carbon atoms in the alkyl group;
- products of the addition of 1 to 15 moles of ethylene oxide onto castor oil and/or hydrogenated castor oil;

- products of the addition of 15 to 60 moles of ethylene oxide onto castor oil and/or hydrogenated castor oil;
- partial esters of glycerol and/or sorbitan with unsaturated, linear or saturated, branched fatty acids containing 12 to 22 carbon atoms and/or hydroxycarboxylic acids containing 3 to 18 carbon atoms and addition products thereof with 1 to 30 moles of ethylene oxide;
- partial esters of polyglycerol (average degree of self-condensation 2 to 8), polyethylene glycol (molecular weight 400 to 5,000), trimethylolpropane, pentaerythritol, sugar alcohols (for example sorbitol), alkyl glucosides (for example methyl glucoside, butyl glucoside, lauryl glucoside) and polyglucosides (for example cellulose) with saturated and/or unsaturated, linear or branched fatty acids containing 12 to 22 carbon atoms and/or hydroxycarboxylic acids containing 3 to 18 carbon atoms and addition products thereof with 1 to 30 moles of ethylene oxide;
- mixed esters of pentaerythritol, fatty acids, citric acid and fatty alcohol according to **DE 11 65 574 PS** and/or mixed esters of fatty acids containing 6 to 22 carbon atoms, methyl glucose and polyols, preferably glycerol or polyglycerol,
- mono-, di- and trialkyl phosphates and mono-, di- and/or tri-PEG-alkyl phosphates and salts thereof,
- wool wax alcohols,
- polysiloxane/polyalkyl/polyether copolymers and corresponding derivatives,
- polyalkylene glycols and
- glycerol carbonate.

The **addition products of ethylene oxide and/or propylene oxide** with fatty alcohols, fatty acids, alkylphenols or with castor oil are known commercially available products. They are homolog mixtures of which the

average degree of alkoxylation corresponds to the ratio between the quantities of ethylene oxide and/or propylene oxide and substrate with which the addition reaction is carried out. $C_{12/18}$ fatty acid monoesters and diesters of adducts of ethylene oxide with glycerol are known as refatting agents for cosmetic formulations from **DE 2024051 PS**.

Typical examples of suitable **partial glycerides** are hydroxystearic acid monoglyceride, hydroxystearic acid diglyceride, isostearic acid monoglyceride, isostearic acid diglyceride, oleic acid monoglyceride, oleic acid diglyceride, ricinoleic acid monoglyceride, ricinoleic acid diglyceride, linoleic acid monoglyceride, linoleic acid diglyceride, linolenic acid monoglyceride, linolenic acid diglyceride, erucic acid monoglyceride, erucic acid diglyceride, tartaric acid monoglyceride, tartaric acid diglyceride, citric acid monoglyceride, citric acid diglyceride, malic acid monoglyceride, malic acid diglyceride and technical mixtures thereof which may still contain small quantities of triglyceride from the production process. Addition products of 1 to 30 and preferably 5 to 10 moles of ethylene oxide with the partial glycerides mentioned are also suitable.

Suitable **sorbitan esters** are sorbitan monoisostearate, sorbitan sesquiisostearate, sorbitan diisostearate, sorbitan triisostearate, sorbitan monooleate, sorbitan sesquioleate, sorbitan dioleate, sorbitan trioleate, sorbitan monoerucate, sorbitan sesquierucate, sorbitan dierucate, sorbitan trierucate, sorbitan monoricinoleate, sorbitan sesquiricinoleate, sorbitan diricinoleate, sorbitan triricinoleate, sorbitan monohydroxystearate, sorbitan sesquihydroxystearate, sorbitan dihydroxystearate, sorbitan trihydroxystearate, sorbitan monotartrate, sorbitan sesquitartrate, sorbitan ditartrate, sorbitan tritartrate, sorbitan monocitrate, sorbitan sesquicitrate, sorbitan dicitrate, sorbitan tricitrate, sorbitan monomaleate, sorbitan sesquimaleate, sorbitan dimaleate, sorbitan trimaleate and technical mixtures thereof. Addition products of 1 to 30 and preferably 5 to 10 moles of ethylene oxide with the sorbitan esters mentioned are also suitable.

Typical examples of suitable **polyglycerol esters** are Polyglyceryl-2 Dipolyhydroxystearate (Dehymuls® PGPH), Polyglycerin-3-Diisostearate (Lameform® TGI), Polyglyceryl-4 Isostearate (Isolan® GI 34), Polyglyceryl-3 Oleate, Diisostearoyl Polyglyceryl-3 Diisostearate (Isolan® PDI), Polyglyceryl-3 Methylglucose Distearate (Tego Care® 450), Polyglyceryl-3 Beeswax (Cera Bellina®), Polyglyceryl-4 Caprate (Polyglycerol Caprate T2010/90), Polyglyceryl-3 Cetyl Ether (Chimexane® NL), Polyglyceryl-3 Distearate (Cremophor® GS 32) and Polyglyceryl Polyricinoleate (Admul® WOL 1403), Polyglyceryl Dimerate Isostearate and mixtures thereof.

Examples of other suitable **polyol esters** are the mono-, di- and triesters of trimethylol propane or pentaerythritol with lauric acid, cocofatty acid, tallow fatty acid, palmitic acid, stearic acid, oleic acid, behenic acid and the like optionally reacted with 1 to 30 moles of ethylene oxide.

Zwitterionic surfactants may also be used as emulsifiers. Zwitterionic surfactants are surface-active compounds which contain at least one quaternary ammonium group and at least one carboxylate and one sulfonate group in the molecule. Particularly suitable zwitterionic surfactants are the so-called betaines, such as the N-alkyl-N,N-dimethyl ammonium glycinates, for example cocoalkyl dimethyl ammonium glycinate, N-acylaminopropyl-N,N-dimethyl ammonium glycinates, for example cocoacylaminopropyl dimethyl ammonium glycinate, and 2-alkyl-3-carboxymethyl-3-hydroxyethyl imidazolines containing 8 to 18 carbon atoms in the alkyl or acyl group and cocoacylaminoethyl hydroxyethyl carboxymethyl glycinate. The fatty acid amide derivative known by the CTFA name of *Cocamidopropyl Betaine* is particularly preferred. Other suitable emulsifiers are ampholytic surfactants. Ampholytic surfactants are surface-active compounds which, in addition to a $C_{8/18}$ alkyl or acyl group, contain at least one free amino group and at least one -COOH or -SO_3H group in the molecule and which are capable of forming inner salts. Examples of suitable ampholytic surfactants are N-alkyl glycines, N-alkyl

propionic acids, N-alkylaminobutyric acids, N-alkyliminodipropionic acids, N-hydroxyethyl-N-alkylamidopropyl glycines, N-alkyl taurines, N-alkyl sarcosines, 2-alkylaminopropionic acids and alkylaminoacetic acids containing around 8 to 18 carbon atoms in the alkyl group. Particularly preferred ampholytic surfactants are N-cocoalkylaminopropionate, cocoacylaminoethyl aminopropionate and $C_{12/18}$ acyl sarcosine.

Finally, other suitable emulsifiers are **cationic surfactants**, those of the esterquat type, preferably methyl-quaternized difatty acid triethanolamine ester salts, being particularly preferred.

The **superfatting agents** used may be such substances as, for example, lanolin and lecithin and polyethoxylated or acylated lanolin and lecithin derivatives, polyol fatty acid esters, monoglycerides and fatty acid alkanolamides, the latter also serving as foam stabilizers.

Suitable **pearlizing waxes** are, for example, alkylene glycol esters, particularly ethylene glycol distearate; fatty acid alkanolamides, especially cocofatty acid diethanolamide; partial glycerides, especially stearic acid monoglyceride; esters of polybasic, optionally hydroxysubstituted carboxylic acids with fatty alcohols containing 6 to 22 carbon atoms, especially long-chain esters of tartaric acid; fatty compounds, for example fatty alcohols, fatty ketones, fatty aldehydes, fatty ethers and fatty carbonates which contain a total of at least 24 carbon atoms, especially laurone and distearyl ether; fatty acids, such as stearic acid, hydroxystearic acid or behenic acid, ring opening products of olefin epoxides containing 12 to 22 carbon atoms with fatty alcohols containing 12 to 22 carbon atoms and/or polyols containing 2 to 15 carbon atoms and 2 to 10 hydroxyl groups; and mixtures thereof.

The **consistency factors** used are mainly fatty alcohols or hydroxyfatty alcohols containing 12 to 22 and preferably 16 to 18 carbon atoms and also partial glycerides, fatty acids or hydroxyfatty acids. A combination of these substances with alkyl oligoglucosides and/or fatty acid

N-methyl glucamides of the same chain length and/or polyglycerol poly-12-hydroxystearates is preferably used.

Suitable **thickeners** are, for example, Aerosil types (hydrophilic silicas), polysaccharides, more particularly xanthan gum, guar guar, agar agar, alginates and tyloses, carboxymethyl cellulose and hydroxyethyl cellulose, relatively high molecular weight polyethylene glycol monoesters and diesters of fatty acids, polyacrylates (for example Carbopols® [Goodrich] or Synthalens® [Sigma]), polyacrylamides, polyvinyl alcohol and polyvinyl pyrrolidone, surfactants such as, for example, ethoxylated fatty acid glycerides, esters of fatty acids with polyols such as, for example, pentaerythritol or trimethylol propane, narrow-range fatty alcohol ethoxylates or alkyl oligoglucosides and electrolytes, such as sodium chloride and ammonium chloride.

Suitable **cationic polymers** are, for example, cationic cellulose derivatives such as, for example, the quaternized hydroxyethyl cellulose obtainable from Amerchol under the name of Polymer JR 400®, cationic starch, copolymers of diallyl ammonium salts and acrylamides, quaternized vinyl pyrrolidone/vinyl imidazole polymers such as, for example, Luviquat® (BASF), condensation products of polyglycols and amines, quaternized collagen polypeptides such as, for example, Lauryldimonium Hydroxypropyl Hydrolyzed Collagen (Lamequat® L, Grünau), quaternized wheat polypeptides, polyethyleneimine, cationic silicone polymers such as, for example, Amodimethicone, copolymers of adipic acid and dimethylamino-hydroxypropyl diethylenetriamine (Cartaretine®, Sandoz), copolymers of acrylic acid with dimethyl diallyl ammonium chloride (Merquat® 550, Chemviron), polyaminopolyamides as described, for example, in **FR 2 252 840 A** and crosslinked water-soluble polymers thereof, cationic chitin derivatives such as, for example, quaternized chitosan, optionally in micro-crystalline distribution, condensation products of dihaloalkyls, for example dibromobutane, with bis-dialkylamines, for example bis-dimethylamino-1,3-

propane, cationic guar gum such as, for example, Jaguar®CBS, Jaguar®C-17, Jaguar®C-16 of Celanese, quaternized ammonium salt polymers such as, for example, Mirapol® A-15, Mirapol® AD-1, Mirapol® AZ-1 of Miranol.

Suitable **anionic, zwitterionic, amphoteric and nonionic polymers** are, for example, vinyl acetate/crotonic acid copolymers, vinyl pyrrolidone/vinyl acrylate copolymers, vinyl acetate/butyl maleate/isobornyl acrylate copolymers, methyl vinylether/maleic anhydride copolymers and esters thereof, uncrosslinked and polyol-crosslinked polyacrylic acids, acrylamidopropyl trimethylammonium chloride/acrylate copolymers, octylacrylamide/methyl methacrylate/tert.-butylaminoethyl methacrylate/2-hydroxypropyl methacrylate copolymers, polyvinyl pyrrolidone, vinyl pyrrolidone/vinyl acetate copolymers, vinyl pyrrolidone/dimethylaminoethyl methacrylate/vinyl caprolactam terpolymers and optionally derivatized cellulose ethers and silicones.

Suitable **silicone compounds** are, for example, dimethyl polysiloxanes, methylphenyl polysiloxanes, cyclic silicones and amino-, fatty acid-, alcohol-, polyether-, epoxy-, fluorine-, glycoside- and/or alkyl-modified silicone compounds which may be both liquid and resin-like at room temperature. Other suitable silicone compounds are simethicones which are mixtures of dimethicones with an average chain length of 200 to 300 dimethylsiloxane units and hydrogenated silicates. A detailed overview of suitable volatile silicones can be found in Todd et al. in **Cosm. Toil. 91, 27 (1976)**.

Typical examples of **fats** are glycerides while suitable **waxes** are inter alia natural waxes such as, for example, candelilla wax, carnauba wax, Japan wax, espartograss wax, cork wax, guaruma wax, rice oil wax, sugar cane wax, ouricury wax, montan wax, beeswax, shellac wax, spermaceti, lanolin (wool wax), uropygial fat, ceresine, ozocerite (earth wax), petrolatum, paraffin waxes, microwaxes; chemically modified waxes

(hard waxes) such as, for example, montan ester waxes, sasol waxes, hydrogenated jojoba waxes and synthetic waxes such as, for example, polyalkylene waxes and polyethylene glycol waxes. Besides fats, fat-like substances, such as **lecithins** and **phospholipids**, are suitable additives. Lecithins are known among experts as glycerophospholipids which are formed from fatty acids, glycerol, phosphoric acid and choline by esterification. Accordingly, lecithins are also frequently referred to by experts as phosphatidyl cholines (PCs). Examples of natural lecithins are the kephalins which are also known as phosphatidic acids and which are derivatives of 1,2-diacyl-sn-glycerol-3-phosphoric acids. By contrast, phospholipids are generally understood to be mono- and preferably diesters of phosphoric acid with glycerol (glycerophosphates) which are normally classed as fats. Sphingosines and sphingolipids are also suitable.

Metal salts of fatty acids such as, for example, magnesium, aluminium and/or zinc stearate or ricinoleate may be used as **stabilizers**.

In the context of the invention, **biogenic agents** are, for example, tocopherol, tocopherol acetate, tocopherol palmitate, ascorbic acid, deoxyribonucleic acid, retinol, bisabolol, allantoin, phytantriol, panthenol, AHA acids, amino acids, ceramides, pseudoceramides, essential oils, plant extracts and vitamin complexes.

Cosmetic **deodorants** counteract, mask or eliminate body odors. Body odors are formed through the action of skin bacteria on apocrine perspiration which results in the formation of unpleasant-smelling degradation products. Accordingly, deodorants contain active principles which act as germ inhibitors, enzyme inhibitors, odor absorbers or odor maskers.

Basically, suitable **germ inhibitors** are any substances which act against gram-positive bacteria such as, for example, 4-hydroxybenzoic acidand salts and esters thereof, N-(4-chlorophenyl)-N'-(3,4-dichlorophenyl)-urea, 2,4,4'-trichloro-2'-hydroxydiphenylether (triclosan), 4-

chloro-3,5-dimethylphenol, 2,2'-methylene-bis-(6-bromo-4-chlorophenol), 3-methyl-4-(1-methylethyl)-phenol, 2-benzyl-4-chlorophenol, 3-(4-chlorophenoxy)-propane-1,2-diol, 3-iodo-2-propinyl butyl carbamate, chlorhexidine, 3,4,4'-trichlorocarbanilide (TTC), antibacterial perfumes, thymol, thyme oil, eugenol, nettle oil, menthol, mint oil, farnesol, phenoxyethanol, glycerol monolaurate (GML), diglycerol monocaprate (DMC), salicylic acid-N-alkylamides such as, for example, salicylic acid-n-octyl amide or salicylic acid-n-decyl amide.

Suitable **enzyme inhibitors** are, for example, esterase inhibitors. Esterase inhibitors are preferably trialkyl citrates, such as trimethyl citrate, tripropyl citrate, triisopropyl citrate, tributyl citrate and, in particular, triethyl citrate (Hydagen® CAT, Henkel KGaA, Düsseldorf, FRG). Esterase inhibitors inhibit enzyme activity and thus reduce odor formation. Other esterase inhibitors are sterol sulfates or phosphates such as, for example, lanosterol, cholesterol, campesterol, stigmasterol and sitosterol sulfate or phosphate, dicarboxylic acids and esters thereof, for example glutaric acid, glutaric acid monoethyl ester, glutaric acid diethyl ester, adipic acid, adipic acid monoethyl ester, adipic acid diethyl ester, malonic acid and malonic acid diethyl ester, hydroxycarboxylic acids and esters thereof, for example citric acid, malic acid, tartaric acid or tartaric acid diethyl ester, and zinc glycinate.

Suitable **odor absorbers** are substances which are capable of absorbing and largely retaining the odor-forming compounds. They reduce the partial pressure of the individual components and thus also reduce the rate at which they spread. An important requirement in this regard is that perfumes must remain unimpaired. Odor absorbers are not active against bacteria. They contain, for example, a complex zinc salt of ricinoleic acid or special perfumes of largely neutral odor known to the expert as "fixateurs" such as, for example, extracts of labdanum or styrax or certain abietic acid derivatives as their principal component. Odor maskers are

perfumes or perfume oils which, besides their odor-masking function, impart their particular perfume note to the deodorants. Suitable perfume oils are, for example, mixtures of natural and synthetic fragrances. Natural fragrances include the extracts of blossoms, stems and leaves, fruits, fruit peel, roots, woods, herbs and grasses, needles and branches, resins and balsams. Animal raw materials, for example civet and beaver, may also be used. Typical synthetic perfume compounds are products of the ester, ether, aldehyde, ketone, alcohol and hydrocarbon type. Examples of perfume compounds of the ester type are benzyl acetate, p-tert.butyl cyclohexylacetate, linalyl acetate, phenyl ethyl acetate, linalyl benzoate, benzyl formate, allyl cyclohexyl propionate, styrallyl propionate and benzyl salicylate. Ethers include, for example, benzyl ethyl ether while aldehydes include, for example, the linear alkanals containing 8 to 18 carbon atoms, citral, citronellal, citronellyloxyacetaldehyde, cyclamen aldehyde, hydroxy-citronellal, lilial and bourgeonal. Examples of suitable ketones are the ionones and methyl cedryl ketone. Suitable alcohols are anethol, citronellol, eugenol, isoeugenol, geraniol, linalool, phenylethyl alcohol and terpineol. The hydrocarbons mainly include the terpenes and balsams. However, it is preferred to use mixtures of different perfume compounds which, together, produce an agreeable fragrance. Other suitable perfume oils are essential oils of relatively low volatility which are mostly used as aroma components. Examples are sage oil, camomile oil, clove oil, melissa oil, mint oil, cinnamon leaf oil, lime-blossom oil, juniper berry oil, vetiver oil, olibanum oil, galbanum oil, labolanum oil and lavendin oil. The following are preferably used either individually or in the form of mixtures: bergamot oil, dihydromyrcenol, lilial, lyral, citronellol, phenylethyl alcohol, α-hexyl-cinnamaldehyde, geraniol, benzyl acetone, cyclamen aldehyde, linalool, Boisambrene Forte, Ambroxan, indole, hedione, sandelice, citrus oil, mandarin oil, orange oil, allylamyl glycolate, cyclovertal, lavendin oil, clary oil, β-damascone, geranium oil bourbon, cyclohexyl salicylate, Vertofix

Coeur, Iso-E-Super, Fixolide NP, evernyl, iraldein gamma, phenylacetic acid, geranyl acetate, benzyl acetate, rose oxide, romillate, irotyl and floramate.

Antiperspirants reduce perspiration and thus counteract underarm wetness and body odor by influencing the activity of the eccrine sweat glands. Aqueous or water-free antiperspirant formulations typically contain the following ingredients:

- astringent active principles,
- oil components,
- nonionic emulsifiers,
- co-emulsifiers,
- consistency factors,
- auxiliaries in the form of, for example, thickeners or complexing agents and/or
- nonaqueous solvents such as, for example, ethanol, propylene glycol and/or glycerol.

Suitable astringent active principles of antiperspirants are, above all, salts of aluminium, zirconium or zinc. Suitable antihydrotic agents of this type are, for example, aluminium chloride, aluminium chlorohydrate, aluminium dichlorohydrate, aluminium sesquichlorohydrate and complex compounds thereof, for example with 1,2-propylene glycol, aluminium hydroxyallantoinate, aluminium chloride tartrate, aluminium zirconium trichlorohydrate, aluminium zirconium tetrachlorohydrate, aluminium zirconium pentachlorohydrate and complex compounds thereof, for example with amino acids, such as glycine. Oil-soluble and water-soluble auxiliaries typically encountered in antiperspirants may also be present in relatively small amounts. Oil-soluble auxiliaries such as these include, for example,

- inflammation-inhibiting, skin-protecting or pleasant-smelling essential oils,
- synthetic skin-protecting agents and/or
- oil-soluble perfume oils.

Typical water-soluble additives are, for example, preservatives, water-soluble perfumes, pH regulators, for example buffer mixtures, water-soluble thickeners, for example water-soluble natural or synthetic polymers such as, for example, xanthan gum, hydroxyethyl cellulose, polyvinyl pyrrolidone or high molecular weight polyethylene oxides.

Suitable **antidandruff agents** are Octopirox® (1-hydroxy-4-methyl-6-(2,4,4-trimethylpentyl)-2-(1H)-pyridinone monoethanolamine salt), Baypival, Piroctone Olamine, Ketoconazole® (4-acetyl-1-{4-[2-(2,4-dichlorophenyl) r-2-(1H-imidazol-1-ylmethyl)-1,3-dioxylan-c-4-ylmethoxy-phenyl}-piperazine, selenium disulfide, colloidal sulfur, sulfur polyethylene glycol sorbitan monooleate, sulfur ricinol polyethoxylate, sulfur tar distillate, salicylic acid (or in combination with hexachlorophene), undecylenic acid, monoethanolamide sulfosuccinate Na salt, Lamepon® UD (protein/undecylenic acid condensate), zinc pyrithione, aluminium pyrithione and magnesium pyrithione/dipyrithione magnesium sulfate.

Standard **film formers** are, for example, chitosan, microcrystalline chitosan, quaternized chitosan, polyvinyl pyrrolidone, vinyl pyrrolidone/vinyl acetate copolymers, polymers of the acrylic acid series, quaternary cellulose derivatives, collagen, hyaluronic acid and salts thereof and similar compounds.

Suitable **swelling agents** for aqueous phases are montmorillonites, clay minerals, Pemulen and alkyl-modified Carbopol types (Goodrich). Other suitable polymers and swelling agents can be found in R. Lochhead's review in **Cosm. Toil. 108, 95 (1993)**.

Examples of **UV protection factors** include organic substances (light filters) which are liquid or crystalline at room temperature and which are capable of absorbing ultraviolet radiation and of releasing the energy absorbed in the form of longer-wave radiation, for example heat. UV-B filters can be oil-soluble or water-soluble. The following are examples of oil-soluble substances:

- 3-benzylidene camphor or 3-benzylidene norcamphor and derivatives thereof, for example 3-(4-methylbenzylidene)-camphor, as described in **EP 0693471 B1**;
- 4-aminobenzoic acid derivatives, preferably 4-(dimethylamino)-benzoic acid-2-ethylhexyl ester, 4-(dimethylamino)-benzoic acid-2-octyl ester and 4-(dimethylamino)-benzoic acid amyl ester;
- esters of cinnamic acid, preferably 4-methoxycinnamic acid-2-ethylhexyl ester, 4-methoxycinnamic acid propyl ester, 4-methoxycinnamic acid isoamyl ester, 2-cyano-3,3-phenylcinnamic acid-2-ethylhexyl ester (Octocrylene);
- esters of salicylic acid, preferably salicylic acid-2-ethylhexyl ester, salicylic acid-4-isopropylbenzyl ester, salicylic acid homomenthyl ester;
- derivatives of benzophenone, preferably 2-hydroxy-4-methoxy-benzophenone, 2-hydroxy-4-methoxy-4'-methylbenzophenone, 2,2'-dihydroxy-4-methoxybenzophenone;
- esters of benzalmalonic acid, preferably 4-methoxybenzalmalonic acid di-2-ethylhexyl ester;
- triazine derivatives such as, for example, 2,4,6-trianilino-(p-carbo-2'-ethyl-1'-hexyloxy)-1,3,5-triazine and Octyl Triazone as described in **EP 0 818 450 A1** or Dioctyl Butamido Triazone (Uvasorb® HEB);
- propane-1,3-diones such as, for example, 1-(4-tert.butylphenyl)-3-(4'-methoxyphenyl)-propane-1,3-dione;

- ketotricyclo(5.2.1.0)decane derivatives, as described in **EP 0 694 521 B1**.

Suitable water-soluble substances are

- 2-phenylbenzimidazole-5-sulfonic acid and alkali metal, alkaline earth metal, ammonium, alkylammonium, alkanolammonium and glucammonium salts thereof;
- sulfonic acid derivatives of benzophenones, preferably 2-hydroxy-4-methoxybenzophenone-5-sulfonic acid and salts thereof;
- sulfonic acid derivatives of 3-benzylidene camphor such as, for example, 4-(2-oxo-3-bornylidenemethyl)-benzene sulfonic acid and 2-methyl-5-(2-oxo-3-bornylidene)-sulfonic acid and salts thereof.

Typical UV-A filters are, in particular, derivatives of benzoyl methane such as, for example 1-(4'-tert.butylphenyl)-3-(4'-methoxyphenyl)-propane-1,3-dione, 4-tert-butyl-4'-methoxydibenzoylmethane (Parsol 1789), 1-phenyl-3-(4'-isopropylphenyl)-propane-1,3-dione and the eneamine compounds described in **DE 19712033 A1** (BASF). The UV-A and UV-B filters may of course also be used in the form of mixtures. Besides the soluble substances mentioned, insoluble pigments, i.e. finely dispersed metal oxides or salts, may also be used for this purpose. Examples of suitable metal oxides are, in particular, zinc oxide and titanium dioxide and also oxides of iron, zirconium, silicon, manganese, aluminium and cerium and mixtures thereof. Silicates (talcum), barium sulfate and zinc stearate may be used as salts. The oxides and salts are used in the form of the pigments for skin-care and skin-protecting emulsions and decorative cosmetics. The particles should have an average diameter of less than 100 nm, preferably from 5 to 50 nm and more preferably from 15 to 30 nm. They may be spherical in shape although ellipsoidal particles or other non-

spherical particles may also be used. The pigments may also be surface-treated, i.e. hydrophilicized or hydrophobicized. Typical examples are coated titanium dioxides such as, for example, Ttitandioxid T 805 (Degussa) or Eusolex® T2000 (Merck). Suitable hydrophobic coating materials are, above all, silicones and especially trialkoxyoctyl silanes or simethicones. So-called micro- or nanopigments are preferably used in sun protection products. Micronized zinc oxide is preferably used. Other suitable UV filters can be found in P. Finkel's review in **SÖFW-Journal 122, 543 (1996)**.

Besides the two above-mentioned groups of primary protection factors, secondary protection factors of the **antioxidant** type may also be used. Secondary sun protection factors of the antioxidant type interrupt the photochemical reaction chain which is initiated when UV rays penetrate into the skin. Typical examples of suitable antioxidants are amino acids (for example glycine, histidine, tyrosine, tryptophane) and derivatives thereof, imidazoles (for example urocanic acid) and derivatives thereof, peptides, such as D,L-carnosine, D-carnosine, L-carnosine and derivatives thereof (for example anserine), carotinoids, carotenes (for example α-carotene, β-carotene, lycopene) and derivatives thereof, chlorogenic acid and derivatives thereof, liponic acid and derivatives thereof (for example dihydroliponic acid), aurothioglucose, propylthiouracil and other thiols (for example thioredoxine, glutathione, cysteine, cystine, cystamine and glycosyl, N-acetyl, methyl, ethyl, propyl, amyl, butyl and lauryl, palmitoyl, oleyl, γ-linoleyl, cholesteryl and glyceryl esters thereof) and their salts, dilaurylthiodipropionate, distearylthiodipropionate, thiodipropionic acid and derivatives thereof (esters, ethers, peptides, lipids, nucleotides, nucleosides and salts) and sulfoximine compounds (for example butionine sulfoximines, homocysteine sulfoximine, butionine sulfones, penta-, hexa- and hepta-thionine sulfoximine) in very small compatible dosages (for example pmole to μmole/kg), also (metal) chelators (for example α-

hydroxyfatty acids, palmitic acid, phytic acid, lactoferrine), α-hydroxy acids (for example citric acid, lactic acid, malic acid), humic acid, bile acid, bile extracts, bilirubin, biliverdin, EDTA, EGTA and derivatives thereof, unsaturated fatty acids and derivatives thereof (for example γ-linolenic acid, linoleic acid, oleic acid), folic acid and derivatives thereof, ubiquinone and ubiquinol and derivatives thereof, vitamin C and derivatives thereof (for example ascorbyl palmitate, Mg ascorbyl phosphate, ascorbyl acetate), tocopherols and derivatives (for example vitamin E acetate), vitamin A and derivatives (vitamin A palmitate) and coniferyl benzoate of benzoin resin, rutinic acid and derivatives thereof, α-glycosyl rutin, ferulic acid, furfurylidene glucitol, carnosine, butyl hydroxytoluene, butyl hydroxyanisole, nordihydroguaiac resin acid, nordihydroguaiaretic acid, trihydroxy-butyrophenone, uric acid and derivatives thereof, mannose and derivatives thereof, Superoxid-Dismutase, zinc and derivatives thereof (for example ZnO, $ZnSO_4$), selenium and derivatives thereof (for example selenium methionine), stilbenes and derivatives thereof (for example stilbene oxide, trans-stilbene oxide) and derivatives of these active substances suitable for the purposes of the invention (salts, esters, ethers, sugars, nucleotides, nucleosides, peptides and lipids).

In addition, **hydrotropes** such as, for example, ethanol, isopropyl alcohol or polyols may be used to improve flow behavior. Suitable polyols preferably contain 2 to 15 carbon atoms and at least two hydroxyl groups. The polyols may contain other functional groups, especially amino groups, or may be modified with nitrogen. Typical examples are

- glycerol;
- alkylene glycols such as, for example, ethylene glycol, diethylene glycol, propylene glycol, butylene glycol, hexylene glycol and polyethylene glycols having an average molecular weight of 100 to 1,000 dalton;

- technical oligoglycerol mixtures with a degree of self-condensation of 1.5 to 10 such as, for example, technical diglycerol mixtures with a diglycerol content of 40 to 50% by weight;
- methylol compounds such as, in particular, trimethylol ethane, trimethylol propane, trimethylol butane, pentaerythritol and dipentaerythritol;
- lower alkyl glucosides, particularly those containing 1 to 8 carbon atoms in the alkyl group, for example methyl and butyl glucoside;
- sugar alcohols containing 5 to 12 carbon atoms such as, for example, sorbitol or mannitol;
- sugars containing 5 to 12 carbon atoms such as, for example, glucose or sucrose;
- aminosugars such as, for example, glucamine;
- dialcoholamines, such as diethanolamine or 2-aminopropane-1,3-diol.

Suitable **preservatives** are, for example, phenoxyethanol, formaldehyde solution, parabens, pentanediol or sorbic acid and the other classes of compounds listed in **Appendix 6, Parts A and B** of the **Kosmetikverordnung** ("Cosmetics Directive"). Suitable **insect repellents** are N,N-diethyl-m-toluamide, pentane-1,2-diol or Ethyl Butylacetyl-aminopropionate. A suitable **self-tanning agent** is dihydroxyacetone. Suitable tyrosine inhibitors which prevent the formation of melanin and are used in depigmenting agents are, for example, arbutin, koji acid, coumaric acid and ascorbic acid (vitamin C).

Suitable **perfume oils** are mixtures of natural and synthetic fragrances. Natural fragrances include the extracts of blossoms (lily, lavender, rose, jasmine, neroli, ylang-ylang), stems and leaves (geranium, patchouli, petitgrain), fruits (anise, coriander, caraway, juniper), fruit peel (bergamot, lemon, orange), roots (nutmeg, angelica, celery, cardamon, costus, iris, calmus), woods (pinewood, sandalwood, guaiac wood,

cedarwood, rosewood), herbs and grasses (tarragon, lemon grass, sage, thyme), needles and branches (spruce, fir, pine, dwarf pine), resins and balsams (galbanum, elemi, benzoin, myrrh, olibanum, opoponax). Animal raw materials, for example civet and beaver, may also be used. Typical synthetic perfume compounds are products of the ester, ether, aldehyde, ketone, alcohol and hydrocarbon type. Examples of perfume compounds of the ester type are benzyl acetate, phenoxyethyl isobutyrate, p-tert.butyl cyclohexylacetate, linalyl acetate, dimethyl benzyl carbinyl acetate, phenyl ethyl acetate, linalyl benzoate, benzyl formate, ethylmethyl phenyl glycinate, allyl cyclohexyl propionate, styrallyl propionate and benzyl salicylate. Ethers include, for example, benzyl ethyl ether while aldehydes include, for example, the linear alkanals containing 8 to 18 carbon atoms, citral, citronellal, citronellyloxyacetaldehyde, cyclamen aldehyde, hydroxycitronellal, lilial and bourgeonal. Examples of suitable ketones are the ionones, α-isomethylionone and methyl cedryl ketone. Suitable alcohols are anethol, citronellol, eugenol, isoeugenol, geraniol, linalool, phenylethyl alcohol and terpineol. The hydrocarbons mainly include the terpenes and balsams. However, it is preferred to use mixtures of different perfume compounds which, together, produce an agreeable fragrance. Other suitable perfume oils are essential oils of relatively low volatility which are mostly used as aroma components. Examples are sage oil, camomile oil, clove oil, melissa oil, mint oil, cinnamon leaf oil, lime-blossom oil, juniper berry oil, vetiver oil, olibanum oil, galbanum oil, labolanum oil and lavendin oil. The following are preferably used either individually or in the form of mixtures: bergamot oil, dihydromyrcenol, lilial, lyral, citronellol, phenylethyl alcohol, α-hexylcinnamaldehyde, geraniol, benzyl acetone, cyclamen aldehyde, linalool, Boisambrene Forte, Ambroxan, indole, hedione, sandelice, citrus oil, mandarin oil, orange oil, allylamyl glycolate, cyclovertal, lavendin oil, clary oil, β-damascone, geranium oil bourbon, cyclohexyl salicylate, Vertofix Coeur, Iso-E-Super, Fixolide NP, evernyl,

iraldein gamma, phenylacetic acid, geranyl acetate, benzyl acetate, rose oxide, romillat, irotyl and floramat.

Suitable **dyes** are any of the substances suitable and approved for cosmetic purposes as listed, for example, in the publication **"Kosmetische Färbemittel"** of the **Farbstoffkommission der Deutschen Forschungsgemeinschaft, Verlag Chemie, Weinheim, 1984, pages 81 to 106.** These dyes are normally used in concentrations of 0.001 to 0.1% by weight, based on the mixture as a whole.

The total percentage content of auxiliaries and additives may be from 1 to 50% by weight and is preferably from 5 to 40% by weight, based on the particular composition. The preparations may be produced by standard hot or cold processes and are preferably produced by the phase inversion temperature method.

Examples

Foaming behavior was determined to DIN 53 902 using 1% by weight solutions and a foaming machine (20°C, 16°d, 1% by weight sebum challenge). Skin irritation potential was determined by OECD Method No. 404 and EEC Directive 84/449 EEC, Pt. B. 4 using 5% by weight solutions. The total irritation scores shown were calculated from the irritation scores obtained after 24, 48 and 72 hours. The total irritation score determined in comparison test C1 for a 100% C_{12-14} alkyl oligoglucoside was put at 100% and the total irritation scores obtained in the other tests were related to that score. The results are set out in Table 1. Table 2 contains numerous Formulation Examples.

Table 1

Composition, foaming capacity and dermatological compatibility of surfactant mixtures

Composition/performance	**1**	**2**	**3**	**4**	**C1**	**C2**	**C3**	**C4**
$C_{12/14}$ cocoalkyl oligoglucoside	50	-	75	90	100	-	-	-
$C_{8/18}$ cocoalkyl oligoglucoside	-	60	-	-	-	100	-	-
$C_{12/14}$ cocoalkyl oligoglucoside tartrate[1)]	-	-	-	-	-	-	100	50
Tartaric acid monolaurylester, Na salt	50	-	-	10	-	-	-	50
Malic acid monolaurylester, Na salt	-	40	-	-	-	-	-	-
Citric acid dicocoylester, Na salt	-	-	25	-	-	-	-	-
Foaming capacity [ml]								
- basic foam	300	330	270	180	120	150	170	100
- foam height after 20 mins.	180	220	180	150	20	30	40	0
Total irritation score [%]	41	45	43	67	100	98	109	58

[1)] Eucarol® AGE, Lamberti/IT.

Table 2.
Cosmetic preparations (water, preservative to 100% by weight)

Composition (INCI)	1	2	3	4	5	6	7	8	9	10
Texapon® NSO Sodium Laureth Sulfate	-	-	-	-	-	-	38.0	38.0	25.0	
Texapon® SB 3 Disodium Laureth Sulfosuccinate	-	-	-	-	-	-	-	-	10.0	-
Plantacare® 818 Coco Glucosides	-	-	-	1.0	-	-	7.0	7.0	6.0	-
Plantacare® PS 10 Sodium Laureth Sulfate (and) Coco Glucosides	1.0	1.0	1.0	-	1.0	1.0	-	-	-	16.0
Dehyton® PK 45 Cocamidopropyl Betaine	-	-	-	-	-	-	-	-	10.0	-
Dehyquart® A Cetrimonium Chloride	2.0	2.0	2.0	2.0	4.0	4.0	-	-	-	-
Dehyquart L® 80 Dicocoylmethylethoxymonium Methosulfate (and) Propyleneglycol	1.2	1.2	1.2	1.2	0.6	0.6	-	-	-	-
Eumulgin® B2 Ceteareth-20	0.8	0.8	-	0.8	-	1.0	-	-	-	-
Eumulgin® VL 75 Lauryl Glucoside (and) Polyglyceryl-2 Polyhydroxystearate (and) Glycerin	-	-	0.8	-	0.8	-	-	-	-	-
Lanette® O Cetearyl Alcohol	2.5	2.5	2.5	2.5	3.0	2.5	-	-	-	-
Cutina® GMS Glyceryl Stearate	0.5	0.5	0.5	0.5	0.5	1.0	-	-	-	-
Cetiol® HE PEG-7 Glyceryl Cocoate	1.0	-	-	-	-	-	-	-	1.0	-
Cetiol® PGL Hexyldecanol (and) Hexyldecyl laurate	-	1.0	-	-	1.0	-	-	-	-	-
Cetiol® V Decyl Oleate	-	-	-	1.0	-	-	-	-	-	-
Eutanol® G Octyldodecanol	-	-	1.0	-	-	1.0	-	-	-	-
Nutrilan® Keratin W Hydrolyzed Keratin	-	-	-	2.0	-	-	-	-	-	-
Lamesoft® LMG Glyceryl Laurate (and) Potassium Cocoyl Hydrolyzed Collagen	-	-	-	-	-	-	3.0	2.0	4.0	-
Euperlan® PK 3000 AM Glycol Distearate (and) Laureth-4 (and) Cocamidopropyl Betaine	-	-	-	-	-	-	-	3.0	5.0	5.0
Generol® 122 N Soja Sterol	-	-	-	-	1.0	1.0	-	-	-	-
Hydagen® CMF Chitosan	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Sodium Lauryl Tartrate	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Copherol® 12250 Soja Sterol	-	-	0.1	0.1	-	-	-	-	-	-
Arlypon® F Laureth-2	-	-	-	-	-	-	3.0	3.0	1.0	-
Sodium Chloride	-	-	-	-	-	-	-	1.5	-	1.5

(1-4) hair rinse, (5-6) hair conditioner, (7-8) shower bath, (9) shower gel, (10) wash lotion

Table 2.
Cosmetic preparations (water, preservative to 100% by weight) - continuation 1

Composition (INCI)	11	12	13	14	15	16	17	18	19	20
Texapon® NSO Sodium Laureth Sulfate	20.0	20.0	12.4	-	25.0	11.0	-	-	-	-
Texapon® K 14 S Sodium Myreth Sulfate	-	-	-	-	-	-	-	-	11.0	23.0
Texapon® SB 3 Disodium Laureth Sulfosuccinate	-	-	-	-	-	7.0	-	-	-	-
Plantacare® 818 Coco Glucosides	5.0	5.0	4.0	-	-	-	-	-	6.0	4.0
Plantacare® 2000 Decyl Glucoside	-	-	-	1.0	5.0	4.0	-	-	-	-
Plantacare® PS 10 Sodium Laureth Sulfate (and) Coco Glucosides	-	-	-	40.0	-	-	16.0	17.0	-	-
Dehyton® PK 45 Cocamidopropyl Betaine	20.0	20.0	-	-	8.0	-	-	-	-	7.0
Eumulgin® B1 Ceteareth-12	-	-	-	-	1.0	-	-	-	-	-
Eumulgin® B2 Ceteareth-20	-	-	-	1.0	-	-	-	-	-	-
Lameform® TGI Polyglyceryl-3 Isostearate	-	-	-	4.0	-	-	-	-	-	-
Dehymuls® PGPH Polyglyceryl-2 Dipolyhydroxystearate	-	-	1.0	-	-	-	-	-	-	-
Monomuls® 90-L 12 Glyceryl Laurate	-	-	-	-	-	-	-	-	1.0	1.0
Cetiol® HE PEG-7 Glyceryl Cocoate	-	0.2	-	-	-	-	-	-	-	-
Eutanol® G Octyldodecanol	-	-	-	3.0	-	-	-	-	-	-
Nutrilan® Keratin W Hydrolyzed Keratin	-	-	-	-	-	-	-	-	2.0	2.0
Nutrilan® I Hydrolyzed Collagen	1.0	-	-	-	-	2.0	-	2.0	-	-
Lamesoft® LMG Glyceryl Laurate (and) Potassium Cocoyl Hydrolyzed Collagen	-	-	-	-	-	-	-	-	1.0	-
Lamesoft® 156 Hydrogenated Tallow Glyceride (and) Potassium Cocoyl Hydrolyzed Collagen	-	-	-	-	-	-	-	-	-	5.0
Gluadin® WK Sodium Cocoyl Hydrolyzed Wheat Protein	1.0	1.5	4.0	1.0	3.0	1.0	2.0	2.0	2.0	-
Euperlan® PK 3000 AM Glycol Distearate (and) Laureth-4 (and) Cocamidopropyl Betaine	5.0	3.0	4.0	-	-	-	-	3.0	3.0	-
Panthenol	-	-	1.0	-	-	-	-	-	-	-
Arlypon® F Laureth-2	2.6	1.6	-	1.0	1.5	-	-	-	-	-
Sodium Lauryl Tartrate	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Hydagen® CMF Chitosan	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Sodium Chloride	-	-	-	-	-	1.6	2.0	2.2	-	3.0
Glycerin (86% by weight)	-	5.0	-	-	-	-	-	1.0	3.0	-

(11-14) "2-in-1" shower bath, (15-20) shampoo

Table 2.
Cosmetic preparations (water, preservative to 100% by weight) - continuation 2

Composition (INCI)	21	22	23	24	25	26	27	28	29	30
Texapon® NSO Sodium Laureth Sulfate	-	30.0	30.0	-	25.0	-	-	-	-	-
Plantacare® 818 Coco Glucosides	-	10.0	-	-	20.0	1.0	1.0	1.0	1.0	1.0
Plantacare® PS 10 Sodium Laureth Sulfate (and) Coco Glucosides	22.0	-	5.0	22.0	-	-	-	-	-	-
Dehyton® PK 45 Cocamidopropyl Betaine	15.0	10.0	15.0	15.0	20.0	-	-	-	-	-
Emulgade® SE Glyceryl Stearate (and) Ceteareth 12/20 (and) Cetearyl Alcohol (and) Cetyl Palmitate	-	-	-	-	-	5.0	5.0	4.0	-	-
Eumulgin® B1 Ceteareth-12	-	-	-	-	-	-	-	1.0	-	-
Lameform® TGI Polyglyceryl-3 Isostearate	-	-	-	-	-	-	-	-	4.0	-
Dehymuls® PGPH Polyglyceryl-2 Dipolyhydroxystearate	-	-	-	-	-	-	-	-	-	4.0
Monomuls® 90-O 18 Glyceryl Oleate	-	-	-	-	-	-	-	-	2.0	-
Cetiol® HE PEG-7 Glyceryl Cocoate	2.0	-	-	2.0	5.0	-	-	-	-	2.0
Cetiol® OE Dicaprylyl Ether	-	-	-	-	-	-	-	-	5.0	6.0
Cetiol® PGL Hexyldecanol (and) Hexyldecyl Laurate	-	-	-	-	-	-	-	3.0	10.0	9.0
Cetiol® SN Cetearyl Isononanoate	-	-	-	-	-	3.0	3.0	-	-	-
Cetiol® V Decyl Oleate	-	-	-	-	-	3.0	3.0	-	-	-
Myritol® 318 Coco Caprylate Caprate	-	-	-	-	-	-	-	3.0	5.0	5.0
Bees Wax	-	-	-	-	-	-	-	-	7.0	5.0
Nutrilan® Elastin E20 Hydrolyzed Elastin	-	-	-	-	-	2.0	-	-	-	-
Nutrilan® I-50 Hydrolyzed Collagen	-	-	-	-	2.0	-	2.0	-	-	-
Gluadin® AGP Hydrolyzed Wheat Gluten	0.5	0.5	0.5	-	-	-	-	0.5	-	-
Gluadin® WK Sodium Cocoyl Hydrolyzed Wheat Protein	2.0	2.0	2.0	2.0	5.0	-	-	-	0.5	0.5
Euperlan® PK 3000 AM Glycol Distearate (and) Laureth-4 (and) Cocamidopropyl Betaine	5.0	-	-	5.0	-	-	-	-	-	-
Arlypon® F Laureth-2	-	-	-	-	-	-	-	-	-	-
Sodium Cetyl Tartrate	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Hydagen® CMF Chitosan	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Magnesium Sulfate Heptahydrate	-	-	-	-	-	-	-	-	1.0	1.0
Glycerin (86% by weight)	-	-	-	-	-	3.0	3.0	5.0	5.0	3.0

(21-25) foam bath, (26) soft cream, (27,28) moisturizing emulsion, (29,30 night cream)

Table 2.
Cosmetic preparations (water, preservative to 100% by weight) - continuation 3

Composition (INCI)	31	32	33	34	35	36	37	38	39	40
Dehymuls® PGPH Polyglyceryl-2 Dipolyhydroxystearate	4.0	3.0	-	5.0	-	-	-	-	-	-
Lameform® TGI Polyglyceryl-3 Diisostearate	2.0	1.0	-	-	-	-	-	-	-	-
Emulgade® PL 68/50 Cetearyl Glucoside (and) Cetearyl Alcohol	1.0	1.0	1.0	1.0	4.0	1.0	1.0	1.0	3.0	1.0
Eumulgin® B2 Ceteareth-20	-	-	-	-	-	-	-	2.0	-	-
Tegocare® PS Polyglyceryl-3 Methylglucose Distearate	-	-	3.0	-	-	-	4.0	-	-	-
Eumulgin VL 75 Polyglyceryl-2 Dipolyhydroxystearate (and) Lauryl Glucoside (and) Glycerin	-	-	-	-	-	3.5	-	-	2.5	-
Bees Wax	3.0	2.0	5.0	2.0	-	-	-	-	-	-
Cutina® GMS Glyceryl Stearate	-	-	-	-	-	2.0	4.0	-	-	4.0
Lanette® O Cetearyl Alcohol	-	-	2.0	-	2.0	4.0	2.0	4.0	4.0	1.0
Antaron® V 216 PVP / Hexadecene Copolymer	-	-	-	-	-	3.0	-	-	-	2.0
Myritol® 818 Cocoglycerides	5.0	-	10.0	-	8.0	6.0	6.0	-	5.0	5.0
Finsolv® TN C12/15 Alkyl Benzoate	-	6.0	-	2.0	-	-	3.0	-	-	2.0
Cetiol® J 600 Oleyl Erucate	7.0	4.0	3.0	5.0	4.0	3.0	3.0	-	5.0	4.0
Cetiol® OE Dicaprylyl Ether	3.0	-	6.0	8.0	6.0	5.0	4.0	3.0	4.0	6.0
Mineral Oil	-	4.0	-	4.0	-	2.0	-	1.0	-	-
Cetiol® PGL Hexadecanol (and) Hexyldecyl Laurate	-	7.0	3.0	7.0	4.0	-	-	-	1.0	-
Panthenol / Bisabolol	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Sodium Cetyl Tartrate	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Hydagen® CMF Chitosan	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Copherol® F 1300 Tocopherol / Tocopheryl Acetate	0.5	1.0	1.0	2.0	1.0	1.0	1.0	2.0	0.5	2.0
Neo Heliopan® Hydro Sodium Phenylbenzimidazole Sulfonate	3.0	-	-	3.0	-	-	2.0	-	2.0	-
Neo Heliopan® 303 Octocrylene	-	5.0	-	-	-	4.0	5.0	-	-	10.0
Neo Heliopan® BB Benzophenone-3	1.5	-	-	2.0	1.5	-	-	-	2.0	-
Neo Heliopan® E 1000 Isoamyl p-Methoxycinnamate	5.0	-	4.0	-	2.0	2.0	4.0	10.0	-	-
Neo Heliopan® AV Octyl Methoxycinnamate	4.0	-	4.0	3.0	2.0	3.0	4.0	-	10.0	2.0
Uvinol® T 150 Octyl Triazone	2.0	4.0	3.0	1.0	1.0	1.0	4.0	3.0	3.0	3.0
Zinc Oxide	-	6.0	6.0	-	4.0	-	-	-	-	5.0
Titanium Dioxide	-	-	-	-	-	-	-	5.0	-	-
Glycerin (86% by weight)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0

(31) w/o sun cream, (32-34) w/o sun lotion, (35,38,40) o/w sun lotion, (36,37,39) o/w sun cream

CLAIMS

1. Cosmetic and/or pharmaceutical preparations containing

(a) alkyl and/or alkenyl oligoglycosides and

(b) hydroxycarboxylic acid partial esters and/or salts thereof.

2. Preparations as claimed in claim 1, characterized in that they contain as component (a) alkyl and alkenyl oligoglycosides corresponding to formula **(I)**:

$$R^1O\text{-}[G]_p \qquad \textbf{(I)}$$

where R^1 is an alkyl and/or alkenyl group containing 4 to 22 carbon atoms, G is a sugar unit containing 5 or 6 carbon atoms and p is a number of 1 to 10.

3. Preparations as claimed in claims 1 and/or 2, characterized in that they contain partial esters of C_{1-6} hydroxycarboxylic acids as component (b).

4. Preparations as claimed in at least one of claims 1 to 3, characterized in that they contain as component (b) partial esters of hydroxycarboxylic acids selected from the group consisting of lactic acid, tartaric acid, malic acid and citric acid and self-condensation products thereof.

5. Preparations as claimed in at least one of claims 1 to 4, characterized in that they contain partial esters of hydroxycarboxylic acids with C_{6-22} fatty alcohols as component (b).

6. Preparations as claimed in at least one of claims 1 to 5, characterized in that they contain as component (b) partial esters of hydroxycarboxylic acids with fatty alcohols whose alk(en)yl group corresponds to that of the alk(en)glycosides.

7. Preparations as claimed in at least one of claims 1 to 6, characterized in that they contain partial esters of hydroxycarboxylic acids present as alkali metal, alkaline earth metal, ammonium, alkylammonium, alkanolammonium or glucammonium salts as component (b).

8. Preparations as claimed in at least one of claims 1 to 7, characterized in that they contain partial esters of tartaric acid with C_{10-18} fatty alcohols as component (b).

9. Preparations as claimed in at least one of claims 1 to 7, characterized in that they contain partial esters of malic acid with C_{10-18} fatty alcohols as component (b).

10. Preparations as claimed in at least one of claims 1 to 9, characterized in that they contain the alkyl and/or alkenyl oligoglycosides and hydroxycarboxylic acid partial esters in a ratio by weight of 1:99 to 99:1.

11. Preparations as claimed in at least one of claims 1 to 10, characterized in that they additionally contain mild surfactants, oil components, emulsifiers, superfatting agents, pearlizing waxes, consistency factors, thickeners, polymers, silicone compounds, fats, waxes, lecithins, phospholipids, stabilizers, biogenic agents, deodorizers, antiperspirants, antidandruff agents, film formers, swelling agents, UV protection factors, antioxidants, hydrotropes, preservatives, insect repellents, self-tanning agents, tyrosine inhibitors, solubilizers, perfume oils and/or dyes.

12. The use of mixtures of

(a) alkyl and/or alkenyl oligoglycosides and

(b) hydroxycarboxylic acid partial esters and/or salts thereof

for the production of cosmetic and/or pharmaceutical preparations.

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DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION

☐ Declaration Submitted with Initial Filing OR ☒ Declaration Submitted after Initial Filing

Attorney Docket Number	C 2078PCT/US
First Named Inventor	Schmid, Karl Heinz
COMPLETE IF KNOWN	
Application Number	10/088,732
Filing Date	07/22/02
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that
My residence, post office address, and citizenship are as stated below next to my name.
I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) - of the subject matter which is claimed and for which a patent is sought on the invention entitled.

COSMETIC AND/OR PHARMACEUTICAL PREPARATIONS

(Title of the Invention)

the specification of which
☐ is attached hereto

OR

☒ was filed on (MM/DD/YYYY) 09/15/2000 as United States Application Number or PCT International Application Number PCT/EP00/09018 and was amended on (MM/DD/YYYY) _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37 Code of Federal Regulations, § 1 56

I hereby claim foreign priority benefits under Title 35, United States Code §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or §365(a) of any PCT International application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT International application having a filing date before that of the application on which priority is claimed

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached? YES	Certified Copy Attached? NO
199 45 578.3	Germany	09/23/1999	☐	☐	☒

☐ Additional foreign application numbers are listed on a supplemental priority sheet attached hereto

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below

Application Number(s)	Filing Date (MM/DD/YYYY)	
		☐ Additional provisional application numbers are listed on a supplemental priority sheet attached hereto

Burden Hour Statement This form is estimated to take 4 hours to complete Time will vary depending upon the needs of the individual case Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, Patent and Trademark Office, Washington, DC 20231 DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS SEND TO Assistant Commissioner for Patents, Washington DC 20231

Type a plus sign (+) inside this box → ☐ C 2078 PCT/US

DECLARATION

Page 2

I hereby claim the benefit under Title 35, United States Code §120 of any United States application(s), or §365© of any PCT international application designating the United Sates of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application in the manner provided by the first paragraph of Title 35, United States Code §112 1 acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations §1 56 which became available between the filing date of the prior application and the national or PCT international filing date of this application

U.S. Parent Application Number	PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number *(if applicable)*
	PCT/EP00/09018	09/15/2000	

☐ Additional U S or PCT international application numbers are listed on a supplemental priority sheet attached hereto

As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith

☐ Firm Name OR Customer Number or label

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(4)

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Please direct all correspondence to: ☒ Customer Number 23657 or label OR ☐ Fill in correspondence address below

Name					
Address					
Address					
City		State		Zip	
Country		Telephone	610-278-4929	Fax	610-278-4971

hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

1-00

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

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Post Office Address							
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☒ Additional inventors are being named on supplemental sheet(s) attached hereto

Type a plus sign (+) inside this box → ☐ C 2078 PCT/US

DECLARATION

ADDITIONAL INVENTOR(S) Supplemental Sheet

2-00

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

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3-00

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4-00

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5-00

Name of Additional Joint Inventor, if any: ☐ A petition has been filed for this unsigned inventor

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☐ Additional inventors are being named on supplemental sheet(s) attached hereto